FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

June 16 to 29, 2013 (Weeks 25 & 26)

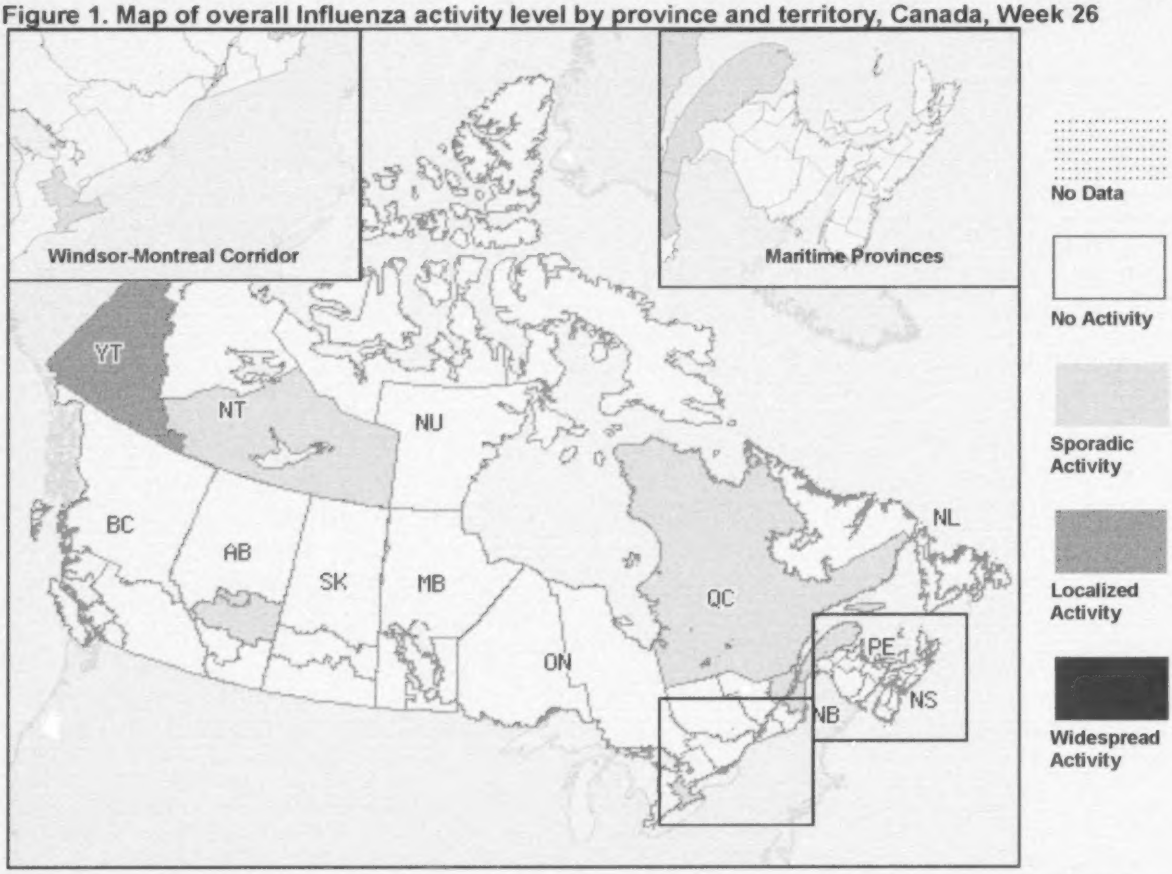
Overall Summary

- Influenza activity in Canada continued to decline, with only one region reporting localized activity during this 2-week period.
- Detections of rhinovirus continued to follow an overall upward trend. Detections of most other respiratory viruses declined. The percentage of laboratory tests positive for influenza was 0.7% in week 26.
- The ILI consultation rate has been fairly stable over the past 12 weeks, and has been above the expected range for the past nine weeks.

Influenza Activity (geographic spread) and Outbreaks

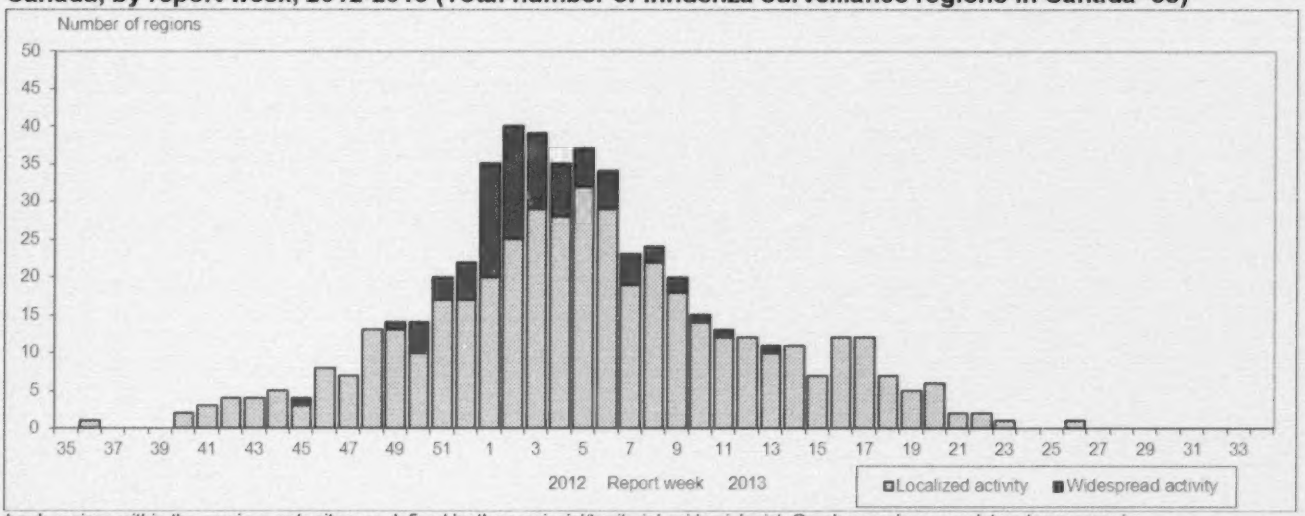
The number of regions reporting influenza activity was at inter-seasonal levels in weeks 25 and 26. In week 25, eight regions reported sporadic activity. In week 26, Yukon reported localized activity and six regions reported sporadic activity (Figures 1 and 2). One new influenza outbreak in a long-term-care facility was reported in week 26 (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 26



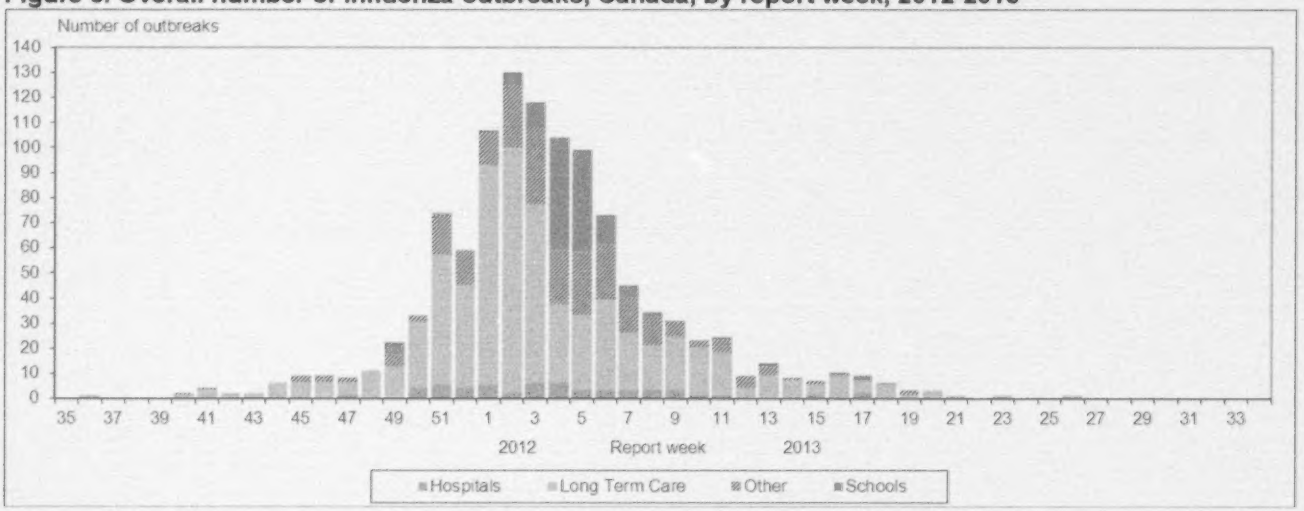
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013



Influenza and Other Respiratory Virus Detections

The overall percentage of positive influenza tests continued to decrease, and was 0.8% in week 25 and 0.7% in week 26. Among the 23 influenza viruses detected in weeks 25 & 26, 13 were influenza A (Table 1). Cumulative influenza virus detections by type/subtype to date are as follows: 85.1% influenza A [34.4% A(H3), 4.7% A(H1N1)pdm09 and 60.9% A(unsubtyped)] and 14.9% influenza B (Table 1).

Detailed information on laboratory detections of influenza was received for 26,300 cases to date this season. Data on age and type/subtype was complete for 26,088 cases (Table 2). The proportion of cases by age group is as follows: 14.8% <5 years; 10.4% between 5-19 years; 16.3% between 20-44 years; 17.0% between 45-64 years of age; 41.5% ≥65 years.

The percentage of positive tests for rhinovirus continued to follow the upward trend observed since week 01, and was 24.8% in week 25 and decreased slightly to 22.9% in week 26. The percentage of positive tests for parainfluenza increased from 4.7% in week 25 to 6.5% in week 26, interrupting the downward trend observed over the previous six weeks. The percentage of positive tests for human metapneumovirus (hMPV) increased slightly to 2.6% in week 26, but continued to follow a downward trend. The percentages of positive tests for respiratory syncytial virus (RSV) (1.1%), coronavirus (0.8%) and adenovirus (1.4%) were low in weeks 25 and 26 (Figure 5)*.

* For more details, see the weekly Respiratory Virus Detections in Canada Report.

Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013

Reporting provinces	Weekly (June 16 to June 29, 2013)						Cumulative (August 26, 2012 to June 29, 2013)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	7	0	5	0	2	0	1923	0	1462	220	241	407
AB	0	0	0	0	0	3	2363	0	1771	448	144	844
SK	1	0	0	0	1	0	840	0	476	74	290	324
MB	0	0	0	0	0	0	659	0	79	10	570	114
ON	3	0	1	1	1	4	8285	0	3791	383	4111	952
QC	2	0	0	0	2	1	9817	0	546	36	9235	1939
NB	0	0	0	0	0	2	1872	0	771	75	1026	102
NS	0	0	0	0	0	0	388	0	165	8	215	9
PE	0	0	0	0	0	0	117	0	76	10	31	1
NL	0	0	0	0	0	0	719	0	152	0	567	18
Canada	**13**	**0**	**6**	**1**	**6**	**10**	**26983**	**0**	**9289**	**1264**	**16430**	**4710**

*Unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013*

Age groups	Weekly (June 16 to June 29, 2013)					Cumulative (Aug. 26, 2012 to June 29, 2013)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	0	0	0	0	0	3005	223	838	1944	852
5-19	0	0	0	0	3	1631	71	613	947	1080
20-44	2	0	1	1	0	3533	355	1219	1959	730
45-64	5	0	3	2	0	3724	327	1219	2178	702
65+	3	1	2	0	0	9990	136	3711	6143	841
Unknown	0	0	0	0	0	210	29	178	3	2
Total	**10**	**1**	**6**	**3**	**3**	**22093**	**1141**	**7778**	**13174**	**4207**

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013

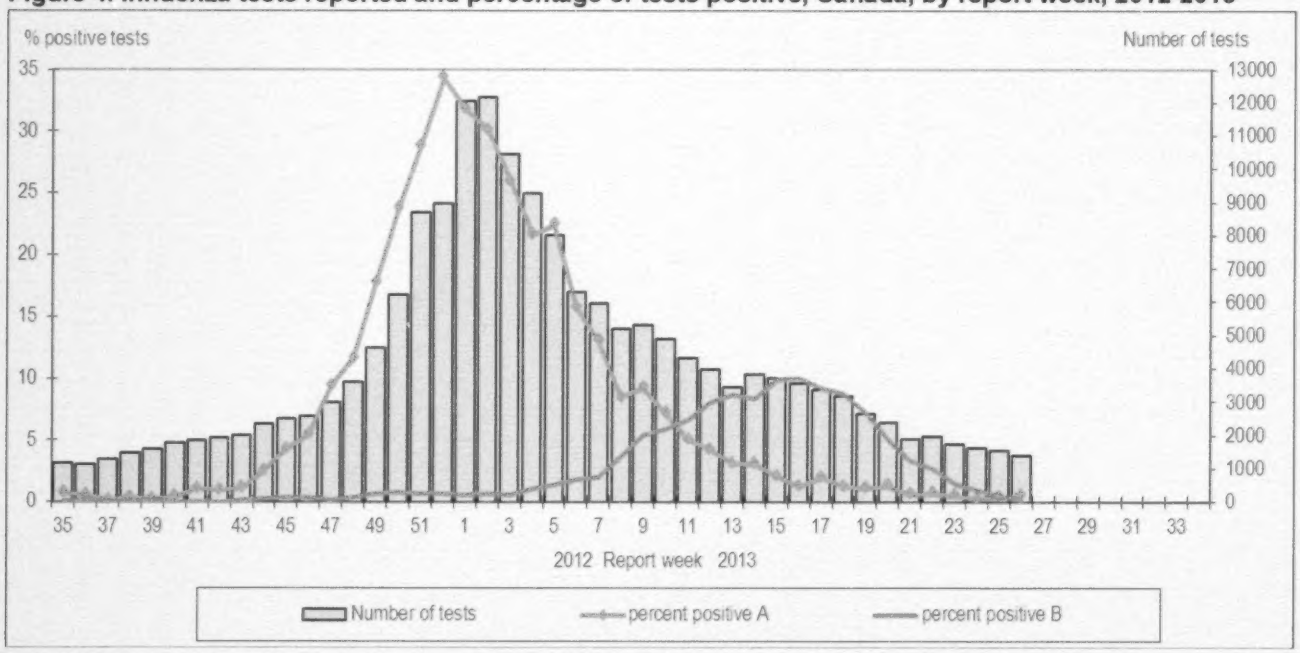
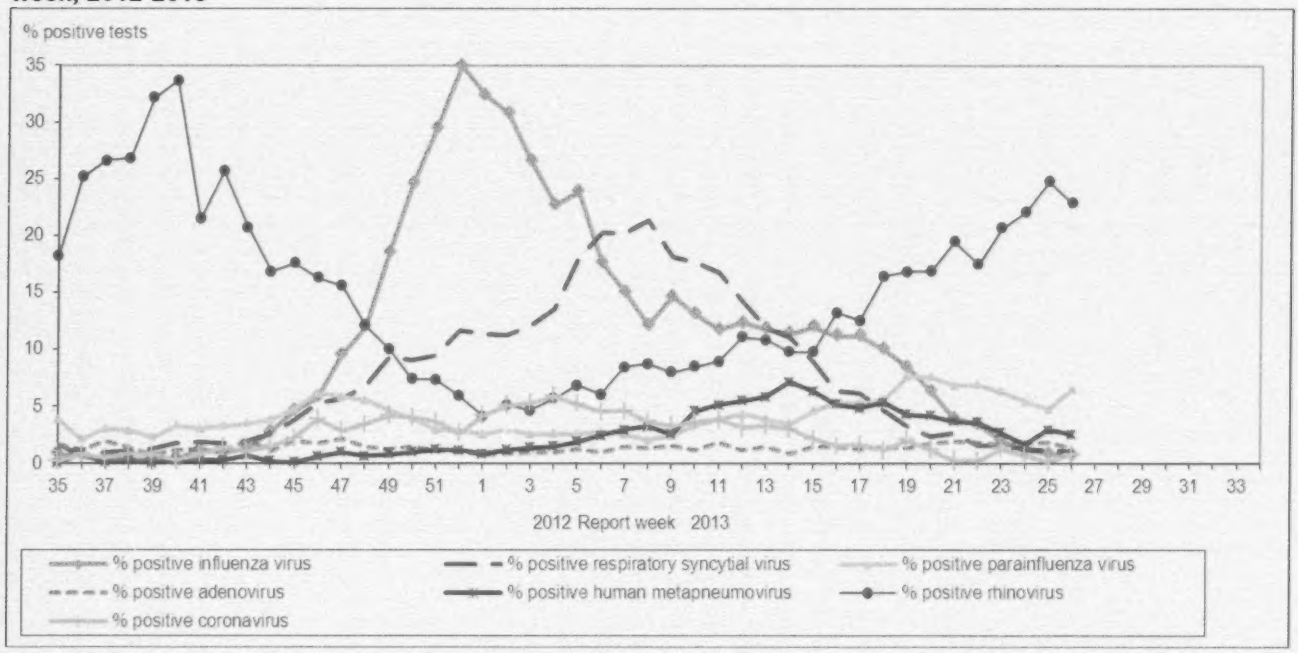


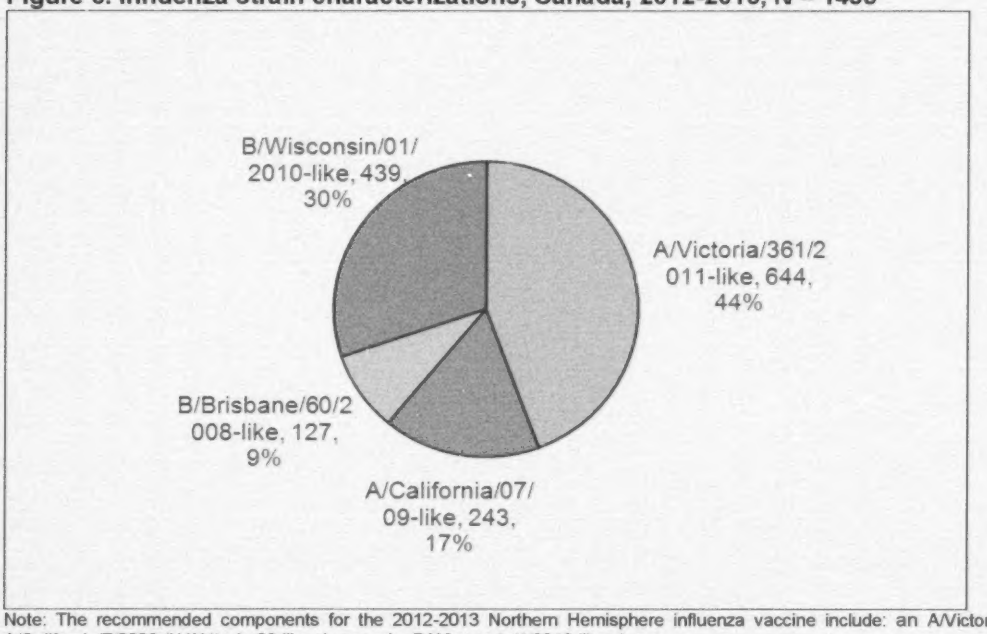
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

During the 2012-13 season, the National Microbiology Laboratory (NML) has antigenically characterized 1453 influenza viruses. The 644 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011 and the 243 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 439 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and 127 were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 1453



Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

Antiviral Resistance

During the 2012-13 season, NML has tested 1422 influenza viruses for resistance to oseltamivir, and 1419 influenza viruses for resistance to zanamivir. Among these, one A(H3N2) virus was resistant to oseltamivir and zanamivir, one A(H1N1)pdm09 virus was resistant to oseltamivir, and one influenza B virus was resistant to both oseltamivir and zanamivir. A total of 1312 influenza A viruses were tested for amantadine resistance and all but one A(H3N2) virus were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013

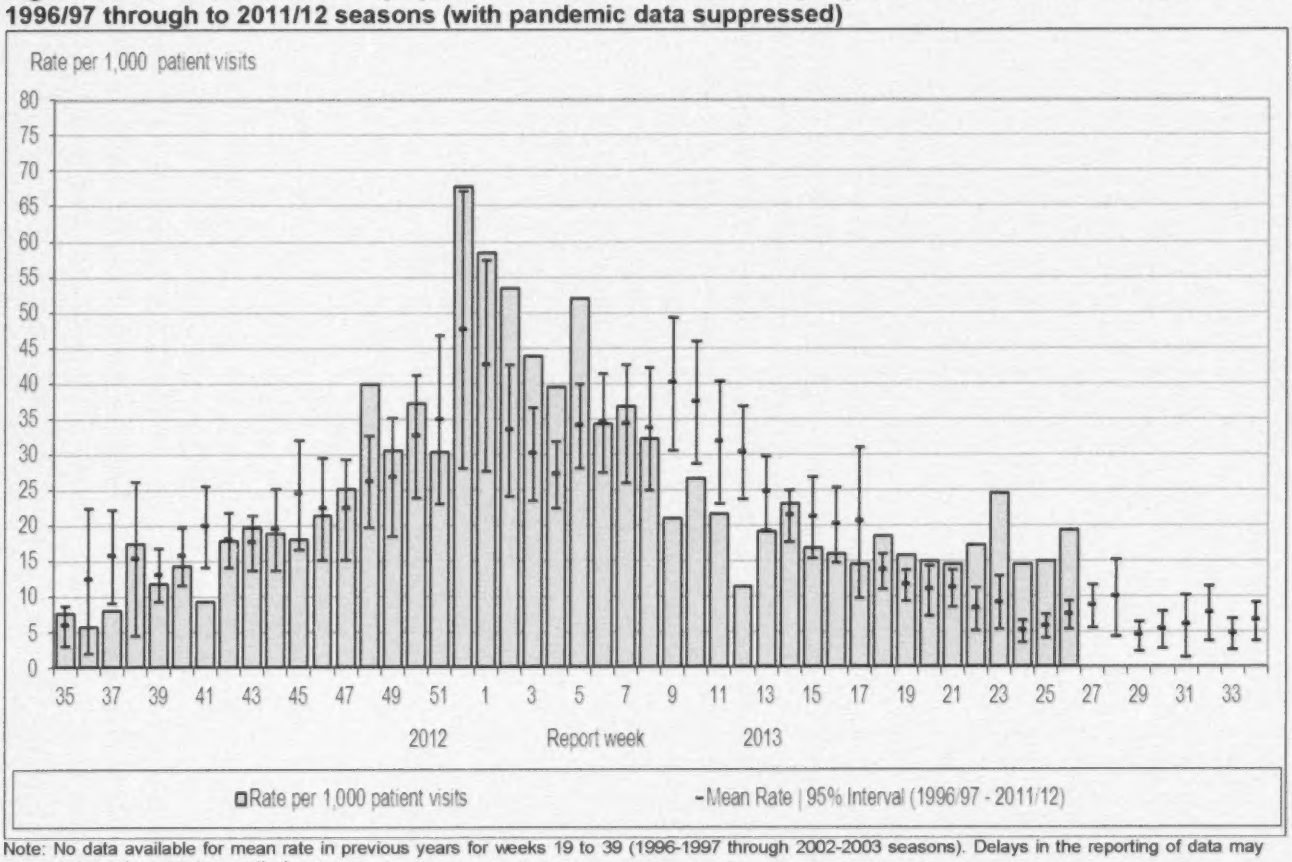
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	639	1 (0.2%)	639	1 (0.2%)	1031	1030 (99.9%)
A (H1N1)	242	1 (0.4%)	239	0	281	281 (100%)
B	541	1 (0.2%)	541	1 (0.2%)	NA*	NA*
TOTAL	1422	3 (0.2%)	1419	2 (0.1%)	1312	1311 (99.9%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate has been similar for the past twelve weeks, ranging from 14.3 to 24.4 ILI consultations per 1,000 patient visits, and was 19.3/1,000 in week 26. The rates observed in weeks 18 to 26 were above the expected range (Figure 7). The highest consultation rate was observed in children 5-19 years of age (30.1/1,000 visits) in week 25, and in children under 5 years of age (49.0/1,000 visits) in week 26.

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In week 25, one laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalization of influenza B in a child 5-9 years of age was reported by the Immunization Monitoring Program Active (IMPACT) network. No cases were reported in week 26. No admissions to an intensive care unit (ICU) and no deaths were reported in weeks 25 and 26.

Since the start of the 2012-13 season, a total of 883 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 623 (70.6%) with influenza A [of which 124 (19.9%) were A(H3N2), 27 (4.3%) were A(H1N1)pdm09 and the remaining 472 were A(unsubtyped); and 260 (29.4%) with influenza B. The distribution of cases by age group is as follows: 162 (18.3%) <6 months of age; 204 (23.1%) age 6-23 months; 252 (28.5%) age 2-4 years; 190 (21.5%) age 5-9 years; and 75 (8.5%) age 10-16 years. Of the 883 cases, 102 (11.6%) were admitted to the ICU. Of the 78 ICU admissions with available data, 65 (83.3%) cases had at least one underlying condition. One death has been reported to date this season in a child 6-23 months of age with an underlying condition, with influenza B.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths (PCIRN)

Active surveillance of laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations reported by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network concluded for the 2012-13 influenza season on April 30th, 2013. However, the PCIRN-SOS network continues to report limited data on laboratory-confirmed cases of influenza identified through passive surveillance at 15 out of 17 hospital sites. In weeks 25 and 26, no hospitalizations, ICU admissions or deaths were reported.

The cumulative data for the season to date includes data from active surveillance from November 4, 2012 to April 30, 2013 and data from passive surveillance since May 1, 2013. The cumulative number of cases is 1,809: 1,624 (89.8%) with influenza A [of which 312 were A(H3N2), 20 were A(H1N1)pdm09, and 1,292 were A(unsubtyped)]; 139 (7.7%) with influenza B, and the type has not been reported for 46 cases. The age distribution of hospitalizations is as follows: 1,230 (68.0%) were ≥65 years of age, 373 (20.6%) were 45-64 years, 194 (10.7%) were 20-44 years, and 12 (0.7%) were <20 years of age. ICU admission was required for 216 hospitalizations; the majority of which were adults ≥65 years of age (123; 56.9%). A total of 116 deaths have been reported: 26 with influenza A(H3N2), one with A(H1N1)pdm09, 82 with A(unsubtyped), 6 with influenza B, and one untyped. More than 85% of the deaths (99/116) were in adults ≥65 years of age, 14 (12.1%) were adults 45-64 years of age, and 3 (2.6%) were 20-44 years of age.

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Provincial/Territorial Influenza Hospitalizations and Deaths (Aggregate Surveillance System)

In weeks 25 and 26, 11 laboratory-confirmed influenza-associated hospitalizations were reported from six of the eight participating provinces and territories*. The majority of cases were influenza A (63.6%). Four hospitalizations were adults ≥65 years of age, two 45-64 years of age, two 20-44 years of age, two 5-14 years of age and one child 0-4 years of age. There was one ICU admission reported among the four cases with available data: a case of influenza A(H3) in an adult ≥65 years of age. Two deaths were reported in adults ≥65 years of age: one case of influenza A(H3) and one case of influenza A(unsubtyped).

To date this season, 5,053 influenza-associated hospitalizations have been reported, of which 86.4% have been influenza A. Of those subtyped (49.3%), influenza A(H3) was the predominant influenza strain. Age information was available for 5,050 cases, and the age distribution is as follows: 2,657 (52.6%) were ≥65 years of age; 838 (16.6%) were 45-64 years of age; 452 (9.0%) were 20-44 years of age; 41 (0.8%) were 15-19 years of age; 275 (5.4%) were 5-14 years; and 787 (15.6%) were 0-4 years of age. Of the 1,401 cases with available data, there have been 222 hospitalisations for which admission to an ICU was required; the highest proportions have been in adults ≥65 years of age, followed by adults 45-64 years of age (35.0% and 33.8%, respectively). To date, 314 deaths have been reported: 258 adults ≥65 years of age, 36 adults 45-64 years; 12 adults 20-44 years, one child 5-14 years of age, and seven children 0-4 years of age. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

Note*: The number of new influenza-associated hospitalizations and deaths reported by the Aggregate Surveillance System each week may be overestimated, as it may include retrospective updates to data from Ontario for previous weeks. These data may also include cases reported by the IMPACT and PCIRN networks. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not reported in Ontario.

International Influenza Updates

Northern Hemisphere

Influenza activity in temperate regions of the northern hemisphere was at low levels in weeks 25 and 26.
World Health Organization influenza update
Centers for Disease Control and Prevention seasonal influenza report
EuroFlu weekly electronic bulletin

Tropical Regions

Asia & Africa: Influenza activity decreased in most countries in tropical Asia, however, Sri Lanka and Viet Nam reported continued circulation of influenza A. Most countries in central Africa reported low influenza activity. The exceptions were Cameroon, Cote d'Ivoire reporting co-circulation of influenza A(H1N1)pdm09 and B, and Kenya reported circulation of influenza B and A(H3N2).
World Health Organization influenza update

Carribean, Central America & tropical South America: Influenza activity remained low in most countries of the Carribean and Central America; however, Cuba and the Dominican Republic reported increasing circulation of A(H1N1)pdm09 for the past 4-6 weeks. In Andean regions of South America, Acute Respiratory Illness (ARI) activity was at similar levels as in recent weeks. A(H1N1)pdm09 continued to circulate in Colombia and Venezuela, the latter reporting ARI activity above the threshold for this time of year. Columbia reported half of specimens positive for respiratory viruses were positive for influenza A(H1N1)pdm09; and increasing ICU admissions with Severe Acute Respiratory Infection (SARI). In Bolivia, A(H3N2) continued to circulate around La Paz, and influenza B in Santa Cruz.
World Health Organization influenza update
PAHO Influenza Situation Report

Southern Hemisphere

Influenza activity has started to increase in South America and South Africa, but remains low in Oceania.
World Health Organization influenza update

South America – Southern Cone: Acute respiratory illness (ARI) activity continued to show an increasing trend and was close to or at the epidemic threshold in week 24. RSV continued to be the predominant virus circulating but increasing circulation of influenza A(H1N1)pdm09 was reported in Argentina and Chile, and A(H3N2) in Paraguay. In Chile, the national ILI consultation rate increased and was at the epidemic threshold level. Brazil reported continued circulation of influenza, primarily in the southeast region; A(H1N1)pdm09 is predominant, with influenza B in some states.
World Health Organization influenza update
PAHO Influenza Situation Report
WHO FluNet

South Africa: Increasing circulation of A(H1N1)pdm09 has been reported since the end of April 2013.
South Africa Influenza surveillance report

Australia & New Zealand: Consultation rates for ILI were below the baseline level, with few specimens positive for influenza in week 26. In New Zealand, the number of influenza viruses detected has been increasing slowly in recent weeks with a mixture of influenza A and B reported.
New Zealand Public Health Surveillance
Australia Influenza Report
WHO FluNet

Emerging Respiratory Pathogens

Human Avian Influenza

Influenza A(H7N9): One retrospective case of human infection with avian influenza A(H7N9) was reported by the World Health Organization (WHO) on 4 July 2013. The case was a 15 year-old male from Jiangsu Province. He became ill on 25 April 2013, and was admitted to hospital on 26 April 2013. He recovered and was discharged on 2 May 2013. Currently, three cases are hospitalized and 86 have been discharged. To date, there have been 134 laboratory-confirmed human cases of infection with avian influenza A(H7N9), with 43 deaths.
PHAC – Avian influenza A(H7N9)
WHO – Avian Influenza A(H7N9)

Human Swine Influenza

Influenza A(H3N2)v: The CDC has reported four cases of human infection with variant influenza A(H3N2)v in Indiana in week 25. All four cases had visited a county fair where they were exposed to swine prior to illness, and none have been hospitalized. These are the first cases of influenza A(H3N2)v reported this year. One virus sample has been fully characterized by CDC and is 99% similar to H3N2v viruses that were detected in the United States in 2012. Since 2011, a total of 325 cases have been reported, and most have been individuals <18 years of age.

Centers for Disease Control and Prevention Influenza A(H3N2) Variant Virus

Middle East Respiratory Syndrome Coronavirus (MERS-CoV)

Since 21 June 2013, WHO has reported fifteen additional cases in Saudi Arabia, including one death, and three deaths in previously confirmed cases. Five cases were female health care workers and at least three were detected as part of an outbreak investigation. All but one of these cases were asymptomatic. Four additional asymptomatic cases, 7 to 15 years of age, were detected among contacts of confirmed cases in Riyadh and the Eastern Region. Of the six remaining cases, of which all were symptomatic, one had contact with a previously confirmed case. Among these symptomatic cases, one has been discharged from hospital, one was hospitalized with pulmonary disease, and three (all reported to have underlying medical conditions) were admitted to ICU. One of these three cases resulted in death. Since April 2012, 79 laboratory-confirmed cases and one probable case of human infection with MERS-CoV have been reported, with 42 deaths. Most patients are male (65%; 49 of 75 cases) and range in age from 2 to 94 years (median 53 years).

PHAC – Middle East respiratory syndrome coronavirus (MERS-CoV)

WHO – Coronavirus infections

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2012-2013 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/influenza outbreaks for the 2012-2013 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2012-2013 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.